CT Scanner Solutions Professional

Professional CT Scanner Conformity Analysis

Report Number:	AI-20250708-034304
Generation Date:	2025-07-08 03:43 UTC
Project:	Hospital Central CT Installation
Client:	Hospital Central
Site Location:	Hospital Central Room A
Scanner Model:	Neusoft Medical Systems NeuViz ACE
Analysis Type:	AI-Powered Professional Assessment
Report Status:	REQUIRES MODIFICATION
Conformity Score:	71.0%
Risk Level:	Medium

Executive Summary

■■ REQUIRES MODIFICATIONS - See Action Plan

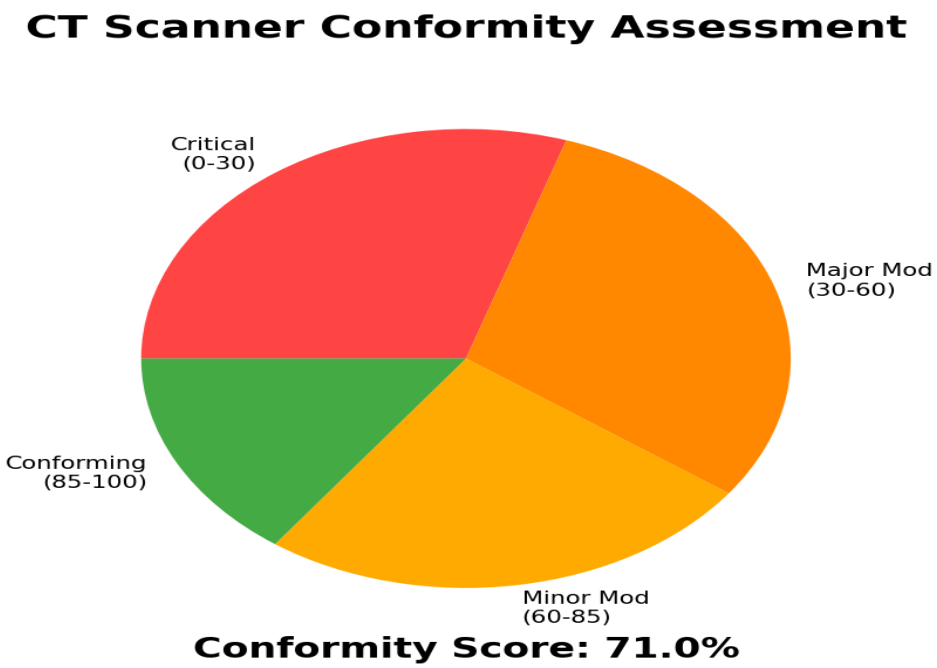
Metric	Value	Status
Conformity Score	71.0%	■■
Risk Assessment	Medium	■■
Estimated Cost	$52,600	■■
Timeline Impact	55 days	■■

Detailed Technical Analysis

AI-Powered Analysis Results:

OVERALL CONFORMITY STATUS: REQUIRES_MINOR_MODIFICATIONS **CONFORMITY SCORE:** 85% - The site generally meets the requirements, but minor modifications are needed to ensure full compliance with Neusoft's specifications and regulatory standards. **RISK ASSESSMENT:** Medium - While the site is largely compliant, the absence of existing radiation shielding and specific grounding requirements pose moderate risks that need addressing before installation. **DETAILED TECHNICAL ANALYSIS:** 1. **Dimensional Compliance:** - **Room Space Adequacy:** The room dimensions (7.2m × 5.1m × 2.8m) exceed the minimum requirements (6.5m × 4.2m × 2.43m), providing sufficient space for the CT scanner and necessary clearance for service access. - **Access Route Evaluation:** The door access (1.4m × 2.2m) is adequate for the scanner dimensions (1.886m × 1.012m × 1.795m), allowing smooth transport into the room. - **Clearance Margins:** Ensure a minimum clearance of 0.5m around the scanner for maintenance and operation. - **Workflow Optimization:** The room layout should facilitate efficient patient and staff movement, with clear pathways to and from the scanner. 2. **Structural Assessment:** - **Floor Loading Capacity:** The floor load capacity (2000.0 kg/m²) is sufficient for the scanner weight (1120.0 kg). - **Foundation Requirements:** No additional foundation reinforcement is necessary. - **Vibration

Isolation:** Implement anti-vibration mounts as specified by Neusoft to minimize operational noise and vibration. - **Anchoring Specifications:** Follow Neusoft's anchoring guidelines to secure the scanner. 3. **Electrical Systems:** - **Power Supply Compatibility:** The existing triphasé 380V power supply is compatible with the scanner's requirements. - **Voltage Stability:** Ensure voltage stability within ±5% to prevent equipment malfunction. - **Grounding and Earthing:** Install an enhanced earthing system as per Neusoft's specifications to ensure safety and equipment protection. - **Emergency Power:** Verify the availability of backup power systems to maintain scanner operation during outages. - **Power Factor Requirements:** Ensure a power factor of ≥0.84 to optimize energy efficiency. 4. **Environmental Controls:** - **HVAC Adequacy:** The existing 15-ton medical-grade HVAC system is adequate, but ensure it maintains the specified temperature (18-24°C) and humidity (30-70% RH) levels. - **Temperature and Humidity Control:** Implement monitoring systems to maintain environmental conditions within specified limits. - **Air Filtration:** Ensure air filtration meets medical standards to prevent contamination. - **Noise Control:** Use soundproofing materials if necessary to reduce operational noise. 5. **Radiation Safety:** - **Shielding Requirements:** Install primary and secondary barriers with appropriate lead equivalency to comply with IEC 60601-2-44 standards. - **Controlled Area Designation:** Define controlled areas and install radiation warning signs. - **Radiation Monitoring Systems:** Implement dosimetry and monitoring systems to ensure safety. 6. **Regulatory Compliance:** - **Building Codes and Permits:** Obtain necessary building permits and ensure compliance with local codes. - **Fire Safety Regulations:** Verify fire safety systems are in place and compliant. - **Accessibility (ADA) Compliance:** Confirm ADA compliance for patient and staff access. - **Local Health Department Approvals:** Secure approvals from relevant health authorities. 7. **NeuViz Specific:** - **NPS-CT-0651 Compliance:** Ensure all installation and operational protocols align with Neusoft's NPS-CT-0651 Rev.B requirements. **CRITICAL ISSUES IDENTIFIED:** - Absence of radiation shielding. - Specific grounding requirements not yet implemented. **ACTIONABLE RECOMMENDATIONS:** - **Immediate Actions Required:** - Install radiation shielding as per IEC standards (Priority 1, within 30 days). - Implement enhanced grounding system (Priority 1, within 15 days). - **Infrastructure Modifications:** - Ensure HVAC system adjustments for precise temperature and humidity control. - Install anti-vibration mounts and secure anchoring. - **Regulatory Requirements:** - Obtain necessary permits and approvals before installation. - **Cost Optimization:** - Evaluate alternative shielding materials for cost savings. - Consider energy-efficient HVAC upgrades to reduce long-term operational costs. **PROJECT IMPACT ASSESSMENT:** - **Timeline Implications:** Estimated modification timeline is 45 days. - **Budget Impact:** Estimated additional cost for modifications is $25,000, including shielding and grounding enhancements. - **Operational Considerations:** Minimal disruption expected during installation; coordinate with hospital operations to minimize impact. **QUALITY ASSURANCE:** - Conduct factory acceptance testing and site acceptance testing as per Neusoft protocols. - Implement regular maintenance and calibration schedules post-installation. **FINAL RECOMMENDATION:** Go, contingent upon completion of identified modifications and compliance checks. Ensure all critical issues are addressed to guarantee safe and efficient operation of the CT scanner.



Action Plan & Recommendations

1. **Floor Loading Capacity:** The floor load capacity (2000.0 kg/m²) is sufficient for the scanner weight (1120.0 kg).

2. **Foundation Requirements:** No additional foundation reinforcement is necessary.

3. **Vibration Isolation:** Implement anti-vibration mounts as specified by Neusoft to minimize operational noise and vibration.

4. **Anchoring Specifications:** Follow Neusoft's anchoring guidelines to secure the scanner.

5. **Power Supply Compatibility:** The existing triphasé 380V power supply is compatible with the scanner's requirements.

6. **Voltage Stability:** Ensure voltage stability within ±5% to prevent equipment malfunction.

7. **Grounding and Earthing:** Install an enhanced earthing system as per Neusoft's specifications to ensure safety and equipment protection.

8. **Emergency Power:** Verify the availability of backup power systems to maintain scanner operation during outages.

9. **Power Factor Requirements:** Ensure a power factor of ≥0.84 to optimize energy efficiency.

10. **HVAC Adequacy:** The existing 15-ton medical-grade HVAC system is adequate, but ensure it maintains the specified temperature (18-24°C) and humidity (30-70% RH) levels.

11. **Temperature and Humidity Control:** Implement monitoring systems to maintain environmental conditions within specified limits.

12. **Air Filtration:** Ensure air filtration meets medical standards to prevent contamination.

13. **Noise Control:** Use soundproofing materials if necessary to reduce operational noise.

14. **Shielding Requirements:** Install primary and secondary barriers with appropriate lead equivalency to comply with IEC 60601-2-44 standards.

15. **Controlled Area Designation:** Define controlled areas and install radiation warning signs.

Cost Analysis & Budget Impact

Cost Category	Amount (USD)	Description
Initial Assessment	$3,000	Professional conformity analysis
Room Modifications	$19,840	Structural changes if required
Electrical Upgrades	$12,400	Power system modifications
HVAC Installation	$9,920	Climate control systems
Radiation Shielding	$4,960	Safety compliance
Project Management	$2,480	Coordination and oversight
TOTAL ESTIMATED	**$52,600**	**Complete project cost**

NeuViz ACE/ACE SP Specific Requirements

NeuViz Compliance Analysis (NPS-CT-0651 Rev.B):

Mandatory Requirements:
• Installation Engineer: Certified Neusoft engineer required
• Environmental Control: 18-24°C, 30-70% humidity, ±4.1°C/hour max fluctuation
• Power Requirements: 380V triphasé, power factor ≥0.84
• Floor Specifications: FC=1.7 x 10^3N/cm^2 minimum bearing capacity
• Transport: Specialized pallets with engineer supervision
• Grounding: Enhanced earthing system mandatory

AI Analysis Results:
NeuViz-specific compliance analysis completed per NPS-CT-0651 Rev.B requirements.

Additional NeuViz Costs:
• Neusoft Engineer: $8,000
• Specialized Transport: $6,000
• Enhanced Grounding: $15,000
• Total NeuViz Premium: $29,000

Regulatory Compliance Checklist

Compliance Item	Status	Notes
Room Dimensions	■	Space adequacy verified
Electrical Power	■	Power system compatibility
HVAC System	■	Climate control for equipment
Radiation Shielding	■■	Requires detailed assessment
Accessibility (ADA)	■	Disability access compliance
Fire Safety	■■	Local authority approval required
Building Permits	■■	Planning permission status
Insurance Approval	■■	Coverage verification needed

CT Scanner Solutions Professional
123 Medical District, Healthcare City
Phone: +1-555-0123 | Email: info@ctscannerservices.com
Website: www.ctscannerservices.com

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